**Reply Comments of**

**Larry Downes[1], Project Director**
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**In the Matter of**

**Protecting and Promoting the Open Internet, GN Docket No. 14-28**

**Preserving the Open Internet, GN Docket 09-191**

**Framework for Broadband Internet Service, GN Docket 10-127**

September 14, 2014

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

RE: *Protecting and Promoting the Open Internet, GN Docket 14-28; Preserving the Open Internet, GN Docket 09-191; Framework for Broadband Internet Service, GN Docket 10-127*

Dear Ms. Dortch:

Subsequent to my original filing in the above-captioned matter, I have published several articles on the dangers of continued consideration by the FCC of "reclassification" of broadband ISP

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services under Title II of the Communications Act.

As the Commission continues its deliberations on the NPRM and alternative approaches to regulating being urged upon it by self-interested parties eager to undermine the highly successful approach to broadband the agency has taken for nearly twenty years, I wanted to bring these articles to your attention. They are attached:

1. **The Biggest Net Neutrality Life of All**[2]
2. **This Year's Net Neutrality Debate Has Completely Missed the Point**[3]
3. **Race to Gigabit Internet Service Takes Off**[4]
4. **Why Internet Governance Should be Left to the Engineers**[5]
5. **Managing the Big Bang: The Regulator's Dilemma**[6]
6. **When Internet "Neutrality Principles" Conflict with Engineering, Everyone Loses**[7]

I offer these papers in the hopes they will assist the Commission in recognizing the danger of proceeding in the direction of Title II.

These articles further underscore the concerns I noted in my initial comments, which I repeat here for the agency's convenience.

Title II was designed to regulate the circuit-switched telephone network during the time of the regulated AT&T monopoly and the post-breakup Bell System. That network has been unable to adapt to the transformation of communications that has accompanied the convergence of

[2] Larry Downes, *The Biggest Net Neutrality Life of All*, FORBES.COM, July 17, 2014, *available at* *http://www.forbes.com/sites/larrydownes/2014/07/17/the-biggest-net-neutrality-lie-of-all/4/*.
[3] Larry Downes, *This Year's Net Neutrality Debate has Completely Missed the Point,* THE WASHINGTON POST, August 27, 2014, available at http://www.washingtonpost.com/blogs/innovations/wp/2014/08/27/this-years-net-neutrality-debate-has-completely-missed-the-point/.
[4] Larry Downes, *Race to Gigabit Internet Service Takes Off*, CNET NEWS.COM, August 31, 2014, *available at* http://www.cnet.com/news/race-to-gigabit-internet-service-takes-off/.
[5] Larry Downes, *Why Internet Governance Should be Left to the Engineers,* THE WASHINGTON POST, September 3, 2014, *available at* http://www.washingtonpost.com/blogs/innovations/wp/2014/09/03/why-internet-governance-should-be-left-to-the-engineers/.
[6] Larry Downes, *Managing the Big Bang: The Regulator's Dilemma,* DEMOCRACY: A JOURNAL OF IDEAS, Fall, 2014, *available at* *http://www.democracyjournal.org/34/managing-the-big-bang-the-regulators-dilemma.php*.
[7] Larry Downes, *When Internet "Neutrality Principles" Conflict with Engineering, Everyone Loses,* FORBES.COM, Sept. 12, 2014, *available at* *http://www.forbes.com/sites/larrydownes/2014/09/12/vcdc-when-internet-neutrality-principles-conflict-with-engineering-everyone-loses/*.

voice, video and data on the packet-switched architecture of the Internet, in large part because of the slow pace of federal and state regulatory proceedings ILECs must engage to offer new and changed services.

It would be ironic, but more to the point catastrophic, to breathe new life into Title II just as its usefulness was ready to expire on its own terms and long after its costs have grown to exceed its benefits.

The legal obstacles to proceeding under Title II remain formidable. At the very least, FCC efforts aimed at "reclassifying" broadband Internet access would likely lead to years of complicated legal proceedings—precisely the kind of regulatory uncertainty the agency is hoping to avoid. Why walk straight into this briar patch when the Commission believes it has all the authority it needs for the proposed rules under Section 706?

The imperative to avoid preemptive regulation, moreover, has increased substantially since 2010. The entire Internet ecosystem, including the technology and business models for delivering broadband access, are at the center of an accelerated process of disruptive innovation my co-author and I have termed "Big Bang Disruption."[8] Big Bang Disruptors are products and services that enter the market better and cheaper than those with which they compete, upending the strategies of incumbent businesses in short order.

For incumbents to have a hope of responding effectively to these new competitors, they must become far more flexible and adaptable to change, responding sooner and more aggressively than traditional management theory has long argued.

But under a Title II regime, even one in which the FCC successfully limited through forbearance its own interference as well as the reach of state regulators, the ability of incumbent ISPs to respond to rapidly-changing technical and business disruptions certain to arrive in the coming years will be, to put it mildly, slowed.

Worse, depending on how far the Commission decided—now or in the future—to extend Title II, much if not all of the rest of the Internet ecosystem could be pulled into the tar pits along with the ISPs. Some commenters, for example, will no doubt encourage the agency to extend the Open Internet rules deep into the architecture of the Internet, to existing network management services including peering, content delivery networks, transit, Internet exchange points, backbones, virtual private networks, backhaul, specialized services, co-located servers and other crucial techniques and technologies yet to be invented.

The Commission wisely excluded these and other essential features of Internet architecture from its 2010 rules.[9] But under a Title II regime, every element of network engineering could

[8] Larry Downes and Paul Nunes, BIG BANG DISRUPTION: STRATEGY IN THE AGE OF DEVASTATING INNOVATION (Portfolio 2014). See also Larry Downes and Paul Nunes, *Big-Bang Disruption,* HARVARD BUSINESS REVIEW (March, 2013).
[9] *See* Downes, *Unscrambling the FCC's Net Neutrality Order*, supra note 7 at 108-116.

come under the scrutiny of federal and state regulators, reaching all the way to content providers and other "edge" services, who are, after all, themselves frequently accused of violating nebulous and expanding "net neutrality" principles.

This is no hypothetical concern. In 2010, when Fox Broadcasting blocked access to its own website for customers of Cablevision during a breakdown in retransmission consent negotiations, Public Knowledge wasted no time convicting them of having "committed what should be considered one of the grossest violations of the open Internet committed by a U.S. company."[10]

PK, long an advocate for a Title II regime, made perfectly clear its view that the FCC needed enforceable rules that would apply not just to facilities-based Internet access providers but to content providers and operators of websites as well. Invoking the pending 2010 NPRM, which excluded a Title II option, PK noted, "Unfortunately, there was no one to call them on it."[11] That "someone" would of course be the FCC, and the "call" would be to find the practice a violation of "true" net neutrality rules.

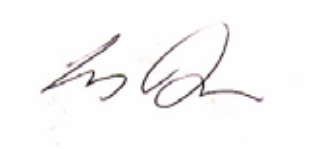
Under a Title II regime, future strategic behavior throughout the Internet ecosystem will be similarly argued to violate common carrier principles regardless of who is involved. Advocates for Title II believe "reclassification" would give the FCC both the authority and the imperative to prohibit individuals from controlling access to their own sites. Firewalls, subscriptions, advertising, perhaps even user ids and passwords will be argued to violate the "open Internet." The FCC, under Title II authority, will be constantly pressured to act against them and other essential features of the Internet.

As the Commission has learned the hard way in the emotional response to this NPRM ***weeks before it was even publically available,*** these same self-interested parties have no hesitation to whip up Internet users with extreme rhetoric and a total void of facts. Under a Title II regime, "net neutrality" will become a formidable hammer in search of nails, one that the agency will be under constant pressure to wield from those who only claim to have the best interest of Internet users, competitive policy, and consumers in mind.

[10] *See* Art Brodsky, *Fox Steps Over the Internet Line*, PUBLIC KNOWLEDGE (Oct. 18, 2010), *available at* https://www.publicknowledge.org/news-blog/blogs/fox-steps-over-internet-line.
[11] *Id.*

To the extent the Commission believes potential market failures make it essential to reinstate the "prophylactic"[12] 2010 rules rejected by the court, the Commission should proceed rationally and deliberately under Section 706, leaving in place the lightly regulated model for Internet access that has been central to the remarkable innovation and adoption of broadband technology of the last decade.

Respectfully submitted,



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Attachments

[12] Larry Downes, *What Verizon's Net Neutrality Challenge is Really About*, FORBES, Sept. 11, 2013, *available at* http://www.forbes.com/sites/larrydownes/2013/09/11/what-verizons-net-neutrality-challenge-is-really-about/2/ .

Appendices

1. **The Biggest Net Neutrality Life of All**
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**Appendix I**

# The Biggest Net Neutrality Lie of All

Larry Downes Contributor

This week, filings are flooding into the FCC about its latest effort to pass "net neutrality" rules, the first phase of public comments on the proposal that will continue for the next several months. So many comments were submitted yesterday, the original deadline for this round, that the FCC's antiquated website crashed, forcing the agency to extend the deadline until Friday. (Supply your own smarmy metaphor.)

Of nearly a million comments filed, most will unfortunately prove to be of little value to the agency's staff as it proceeds with the carefully-proscribed process of federal rulemaking. Consider a few truly random examples: "I, a tax paying, employed, registered voter DEMANDS net neutrality." "This horrid stance is leading this country into another civil war and it seems you people are too stubborn or dumb to see it." "If you can't see your job as anything but a blowjob to Big Telecom then how about resigning?"

But there's another reason most of the consumer comments, many of them admirably trying to defend the concept of the open Internet, are off the mark. Most of those commenting have been lured into participating by a series of carefully-orchestrated lies about what the FCC is actually proposing to do.

These include lies about what the new rules say, about the kinds of practices they will or will not cover, and about FCC Chairman Tom Wheeler's reasons for proposing them. (A future post will go into more excruciating detail. Stay tuned.)

Each of these lies has been built on top of the others, and all in the service of the biggest lie of all—a recycled whopper that the Internet "as we know it" is at death's door, and that the only way to save it is to transform it into a public utility.

Utility regulation—or perhaps outright nationalization of the largest ISPS—is once again being touted as the panacea for everything that currently (or, more often, in the future might) ails the Internet economy. Limited choice of broadband providers? Netflix streaming too slow? The failure of older Americans to see the value of using the Internet? Poor customer service? Turn the Internet into a public utility, and all of it goes away.

What's more, the lie continues, the FCC can do it easily if only it had the political will, and then efficiently and surgically apply the same kind of oversight by federal and state agencies that has long been applied, with unquestioned success, to our electricity, water, power and telephone networks, as well as other national infrastructure including highways, bridges, and the post office. (What's left of the old switched telephone network is regulated under Title II of the Communications Act, which the public utility enthusiasts want to resuscitate and apply to the Internet. Hence the battle cry for "Title II".)

This public utility lie is an old chestnut, going back well over a decade. But this time around, its proponents have managed to convince earnest consumers, start-up executives, and much of the press that transforming Internet access into a utility is not only their one-stop cure, but also their only hope.

Yet instead of doing the right thing, the big lie now warns, Chairman Wheeler and his two Democratic colleagues, over the objections of the FCC's two Republicans, voted to ***end*** net neutrality and "the Internet as we know it" by proposing new rules that would "authorize" ISPs to sell prioritized last-mile treatment (or "fast lanes") to whichever content providers—Google, Amazon, Facebook—can be forced pay for it by "monopoly" broadband providers.

Entrepreneurs and start-ups who can't afford paid priority would be left behind, unable to reach users who wanted to access their content and services and, therefore, unable to compete with the incumbents. The Open Internet would not be shored up by the proposed rules—it would be unceremoniously terminated.

Those who took the bait swallowed hard. A month before the proposal was actually released, for example, *The Verge* declared, "FCC Proposal Would Destroy Net Neutrality." On the day of the vote, still prior to the proposal becoming public, Minnesota Senator Al Franken warned of the "The Beginning of the End of the Internet as we Know it." And just after the vote, *The Huffington Post* even went so far as to retitle a Reuters story to "FCC Votes for Plan to Kill Net Neutrality." (The story ran on Reuters with the headline: "Amid protests, U.S. FCC proposes new 'net neutrality' rules".)

## What the Proposal Really Says

We need to work backwards to understand how we got into the mess we're now in. Significantly, most of the outrage—much of it directed personally at Wheeler, who was only recently appointed FCC Chair by President Obama, who suspiciously remains committed both to net neutrality and to the Chairman–occurred before the FCC proposal was ever made public, after word that a draft was in the works was mysteriously leaked from inside the FCC.

Despite efforts by the Chairman to make clear his new rules would ***extend*** the FCC's oversight over ISPs, rage continued to build, heading dangerously toward farce. The day the Commission voted to move forward with the rulemaking, for example, I appeared on Bloomberg TV, where a representative of Common Cause proudly proclaimed that "millions of people" had already condemned the proposal—a proposal not one of them had seen, let alone read.

Yet once the proposal was actually released, it was clear to anyone who bothered to read it that Wheeler's plan was anything but the radical deconstruction of the Open Internet its opponents claimed it to be.

For one thing, the proposed new rules are nearly identical to those the FCC proudly passed in 2010, but which a federal appellate court largely voided on procedural grounds. (Indeed, many, though not all, of the groups now fervently opposing the 2014 version supported the 2010 version.)

The 2010 rules, recall, were written in response to still another court ruling, which held that the agency's informal Open Internet policy statement (the FCC never uses the phrase "net neutrality") was not enforceable.

After a year of what at the time seemed like rancorous debate but which now seems positively parliamentarian compared to the free-for-all of the last few months, the agency passed rules that outlawed ISPs, with important exceptions, from intentionally blocking user's access to legal Internet content, and from practicing "unreasonable discrimination" in traffic management technologies. (A third rule, requiring more detailed disclosures of traffic management practices, survived the challenge.)

The only difference between the 2010 and 2014 rules is a single change in language made to comply with the court's decision. Where the 2010 version states that ISPs "shall not unreasonably discriminate in transmitting lawful network traffic over a consumer's broadband Internet access service," the 2014 rule says that ISPs "shall not engage in commercially unreasonable practices."

To the extent there is a debate about the merits of Wheeler's proposal, that's the only difference. A prohibition on "unreasonable discrimination" becomes a prohibition on "commercially unreasonable practices." The changed wording was necessitated by the court's admittedly confusing rejection of the 2010 rules. But in practice (that is to say, in terms of how

the FCC can enforce the rules) there is no significant business difference between practices that constitute "unreasonable discrimination" and those that are "commercially unreasonable."

(The new wording comes from rules requiring mobile networks to offer data roaming to each other's customers on "commercially reasonable" terms, which the same court held in a different case was acceptable language.)

Even if there does turn out in practice to be a difference between the two prohibitions, the new rules clearly do not "authorize" anything, nor do they "undo" any net neutrality rules or laws already in place. Congress has never passed any of several proposed net neutrality bills. And after successive court losses on the previous efforts, there have never been enforceable net neutrality regulations at the FCC to begin with.

In short, there is nothing explicit or implied about "fast lanes" and "slow lanes"—whether to ban them or to allow them. (The FCC acknowledges that even without a ban no ISP has yet to offer paid prioritization.) There is, in short, no great conspiracy to undo the Internet that requires consumers to rise up and save it.

Still, opponents of the new rules continue to claim they put an end rather than a beginning to net neutrality. When pressed to engage the actual proposal, they argue vaguely that somehow the slight difference in wording changes everything. What, after all, is a practice that the FCC would find to be "commercially unreasonable"? (What, for that matter, is a practice that would constitute "unreasonable discrimination"? The 2010 rules explicitly refused to define the term, except to say it meant something different that it does under longstanding antitrust laws, which, in the absence of FCC rules, still apply in full force to ISPs.)

Could an ISP offer Google priority delivery for its packets over those of Yahoo, so long as it makes the same offer to Yahoo and anyone else similarly situated? The doomsayers, predictably, say yes.

For its part, the FCC's proposal simply asks (repeatedly) for comment on whether or not such a practice should be pre-emptively barred or reviewed on a case-by-case basis for anti-consumer effects. The Chairman, for one, seems to be leaning toward an outright ban.

So is that the big betrayal hidden in Wheeler's proposal? Well, no. Contrary to another oft-repeated lie, the 2010 version of the same rule rejected an outright ban on paid prioritization, noting instead that depending on how, if ever, such a service was offered, it would "raise significant cause for concern."

In reality, the final order for the 2014 rules, may wind up being more explicit about prohibiting paid prioritization than the rejected 2010 rules. If so, the 2014 version will not only enforce a stronger version of net neutrality than the supposedly better 2010 rules, but will, for the first time ever, provide the FCC with legally-enforceable net neutrality rules of any kind.

But to tilt once again at windmills, the proposed rules don't "authorize" paid prioritization, or, for that matter, any other network management practice, whether one that complies or not with the nebulous neutrality principle.

(Whether the Internet's core architecture was ever "neutral"—a term coined by a legal academic, not a network engineer–is certainly debatable. The 2010 rules, for example, wisely exempted over a dozen long-established and explicitly "non-neutral" practices, including content delivery networks, co-located servers, backbone services, Virtual Private Networks and others.)

## Why the Big Lie?

Even since the proposal was published for public comment, almost none of the ardent commentary and media coverage of the 2014 proposal ever mentions the actual text or its modest variation from the far less controversial 2010 version.

Opponents instead continue to repeat the inflammatory rhetoric crafted before the proposed rules were published—and surely they knew all along the gist of Wheeler's plans to protect, not destroy, the Open Internet by limiting, not extending, ISP practices, as the court invited him to do in January.

One of the groups leading the campaign to demonize Wheeler, for example, continues to describe the "commercially unreasonable" rule as a "the proposal [that] authorizes Internet service providers (ISPs) to discriminate against content and create slow lanes for all those who don't pay special fees."

Notably, they never quote the actual language of the proposed rule, or compare it to the 2010 version. But why engage reality when the fiction seems to be getting you so much farther?

The leaders of the Potemkin-like opposition to the proposed rules know that the FCC is proposing nothing that would "end" net neutrality, but rather to codify a potent version of it in a legally-enforceable form

But that is simply an inconvenient truth. Chairman Wheeler and his fellow Democratic Commissioners must be burned at the stake for a higher cause. Not because their proposed rules "authorize" anything good or bad, in other words, but because without an apocalyptic straw man to beat, there's no crisis that requires the drastic response of the public utility "alternative." The new rules must be aimed at "ending" net neutrality, because without that there's no reason, urgent or otherwise, to save the Internet now, before the FCC acts and it's too late.

And make no mistake. Transforming the Internet into a public utility is a drastic and dangerous idea. Even if the FCC can navigate the treacherous legal waters necessary to "reclassify" Internet access without authority from Congress to do so (and an unchallenged Supreme Court case validating the FCC's long-argued view that Congress never intended otherwise), transforming private ISPs into quasi-governmental utilities would dramatically change the Internet ecosystem, projecting negative unintended consequences up and down the food chain.

As a public utility, every aspect of a company's business is subject to the review and approval of possibly several regulators—federal, state, and local. Prices and price changes must be approved in advance, following lengthy proceedings. Infrastructure of equal quality must be available to every household in the regulated area. Starting, changing, or retiring a service requires permission.

Worst of all, improvements in technology (even simply replacing meters, in the case of electric utilities) must be justified in often politically-poisoned environments that invite graft and corruption.

And everything takes months if not years to work its way through the system—a system that in California alone costs billions in taxpayer dollars to operate.

That's why, as I have noted before, regulating an industry as a public utility has always been understood by economists of every political persuasion to be a correction of last resort, to be imposed only when a market is so broken that no less invasive form of regulation can correct it.

To see what Internet access might actually look like if regulated as a utility, look no farther than the pitiful state of infrastructure that is still public or regulated as a utility, which consistently receives failing grades from consumers and engineers alike. Our roads, bridges, power and water systems are crumbling. And these are mature infrastructures, whose basic technologies haven't changed in decades.

In the last twenty years, meanwhile, Internet access has cycled through several dizzying improvements, going from slow and expensive dial-up to DSL and then to cable and now to fiber and high-speed mobile networks. That level of innovation—and certainly that speed—would have been impossible had Congress not wisely chosen to leave the commercial Internet largely alone from its beginnings.

Elsewhere, the lingering side-effects of inefficient utility regulation are increasingly being exposed by better and cheaper technology alternatives. The semi-private U.S. Postal Service, which has been legally hamstrung in adapting to the sudden disruption of electronic communications, is now losing over $10 billion every year; desperate to offer less, not more, service to its customers.

Uber, Airbnb and other "sharing" economy services are fighting for their very survival against heavily-regulated incumbents, who have become complacent with legal protection from new, technology-savvy competitors, leaving them no incentive to innovate at all.

Absent public utility treatment, on the other hand, broadband ISPs have pumped over a trillion dollars of private capital into building out new wired and mobile networks since 1996. As a result, according to data from the Department of Commerce, over 95% of Americans can already get high-speed Internet at home, about as many as have access to indoor plumbing. That's the fastest deployment and adoption ever for a communications technology, giving us, among other things, more broadband connections than any other country in the world.

Contrast that success to Europe's highly regulated Internet market, where most users are stuck with outdated DSL technology. (When fiber is available, it's too expensive to get many takers.)

## The Regulator of my Competitor is my Ally

So why, in the face of at the very best a highly uncertain future for broadband under a utility model, are those agitating for it whipping Internet users into a frenzy, and doing so using demonstrably false claims about the FCC's actual proposal?

There are, it seems, several reasons. Some are explicit in a sincere but naïve belief that a government owned-and-operated Internet would be better and cheaper than the private one.

Others recognize the costs and risks of injecting government deep into the Internet's core architecture, but imagine (with more wishful thinking than evidence) that powerful governments would be more friendly to consumers than powerful corporations. (They have no patience for any middle ground, such as giving Wheeler's rules a chance to work or not.)

Some of the activists are funded by large incumbent content providers, who believe that throwing the ISPs off-balance will improve their own bargaining position but who almost certainly underestimate the risk of being caught up in the same whirlpool.

Many are just going along for the ride. As I've noted before, there's always a risk that Internet freedom fighters can turn unexpectedly into an Internet mob, especially when the information they're provided is incomplete or, as here, wildly inaccurate.

Which makes the continued repetition of the big lie all the more dangerous. Because in the end, even if FCC Chairman Tom Wheeler was truly about to destroy the Internet with new rules restricting ISPS, the public utility alternative is no alternative at all. It is truly the nuclear option.

A cursory look at the sad history of a hundred and fifty years of public utility regulation makes clear that it also no panacea. Indeed, as two former Obama administration experts have pointed out, a hypothetical ISP would find it easier, not harder, to offer last mile prioritization under Title II than under the proposed rules. (They were accused of being traitors to the cause, and their reasonable voices drowned out in the circus-like atmosphere of Wheeler's public execution.)

Whatever the motives of its proponents, the public utility panacea remains the biggest of all net neutrality lies. As it has been all along, it is a solution in search of a problem.

That's no surprise. Panaceas have always been myths. And where the ancient Greeks once sought a universal remedy for all ailments that would prolong life indefinitely, modern medicine no longer imagines such a possibility.

Indeed, doctors confronted with patients who cling to misguided hope from fake cure-alls for all manner of real or psychosomatic conditions have another word for supposed panaceas. They call them placebos.

***My new book, co-authored with Paul Nunes, is "Big Bang Disruption: Strategy in the Age of Devastating Innovation" (Portfolio 2014). Follow me on Twitter and Facebook for more on the accident-prone intersection of technology and policy.***

**Appendix II**

Innovations

# This year's net neutrality debate has completely missed the point

By Larry Downes August 27


Netflix founder Reed Hastings has attempted to hijack the discussion about the Internet's future. (Paul Sakuma/AP)

Late last week, Silicon Valley congresswoman Anna Eshoo (D-Calif.) launched a contest on Reddit to "rebrand" net neutrality. "All the jargon about net neutrality rules," Eshoo wrote, "is making it difficult [for users] to know what box to check that advances their best interest."

Whether Redditors can come up with better jargon, and whether or not better jargon is really what's needed, Rep. Eshoo is certainly correct that the term has lost all meaning — if it ever had any in the first place.

In response to the FCC's latest effort to pass legally-enforceable rules limiting how Internet service provides (ISPs) manage increasingly complex Internet traffic, advocacy groups and others have intentionally upended the process with extreme rhetoric, leaving most users unsure whether Chairman Tom Wheeler's on-going initiative would advance or undermine the open Internet (as the FCC refers to net neutrality).

That confusion is clear from even a random sampling of over a million comments submitted so far, many of which could not be read over the air without violating FCC decency rules. Most reflect little understanding of the proposal's actual content, or the legal and technical context in which Wheeler and his two Democratic colleagues are operating. Instead, consumers are understandably upset over misleading claims that the Democratic commissioners are trying to "kill net neutrality" and "end the Internet as we know it."

In fact, the chairman insists, he is trying to do just the opposite.

How did we get here? Despite the doomsday scares of a technology apocalypse, the current fight over who and how to regulate the Internet is not about the future of innovation, Internet access, broadband pricing, competition, fairness, or motherhood. It's something much less exciting, though, depending on the outcome, much more dangerous.

The strength of the Internet has always been its openness. Its technical protocols aren't owned by anyone, meaning everyone can create a Web site, send and receive e-mail, or host advanced audio and video services just by following the standards. So long as they know where to find it, users can access whatever content they are interested in.

If that is all that is meant by net neutrality, there is no serious argument about its value. But the realities of Internet engineering have never been so simple. The real and often intentionally hidden issue in the net neutrality debate has always been who should oversee the specific technical decisions that must be made on a daily basis. Should they be left to the engineers themselves? Or should we rely on traditional regulators — the United Nations, the FCC, and/or state public utility commissions?

In the United States, that question was definitively answered in 1996, when a bipartisan Congress, along with the Clinton White House, gave regulators minimal authority over the then-nascent commercial Internet, hoping to protect it from overregulation.

That was a wise decision. Since 1996, network operators have invested over $1 trillion building and upgrading infrastructure, reinventing "the Internet as we know it" from static, text-based Web pages and slow dial-up to the video-dominated, high-speed wired and wireless broadband we enjoy today.

No surprise, then, that as the FCC sought in 2010 to codify its open Internet principles into legally-enforceable rules, an extended and contentious public comment process uncovered only four examples of possibly dangerous behavior, only one of which (the blocking of Internet telephone services by a small rural phone company) required FCC action to correct.

Earlier this year, however, a federal appellate court threw out much of the 2010 rulemaking on procedural grounds. But the court also agreed with the agency that a largely unused provision of the law, known as Section 706, could be used to ground the rules more securely.

That's when the process was intentionally derailed. From inside the FCC, word leaked out in April that new rules Wheeler was drafting weren't simple revisions needed to comply with the court's ruling. Rather, according to a noisy campaign led by self-styled consumer advocates and a few large Internet companies, the three Obama appointees were plotting to "kill" net neutrality.

The new rules, users were told, would not, as the 2010 rules had tried to do, prohibit dangerous network management practices. Instead, the Democrats were secretly planning to "authorize" ISPs to create last-mile Internet "fast lanes" available to the highest bidder. ("It's True," wrote

one of the advocacy groups. "The FCC's 'Open Internet' Proposal Would Bless Internet Discrimination and Destroy Net Neutrality.")

The fast lane claim was a red herring. Despite the absence of any legally-enforceable rules between 1996 and today, no ISP has ever tried to sell such services. Some have indicated they have no objection to an explicit and prophylactic ban.

When the actual proposal was made public in May, in any case, Wheeler's supposed conspiracy was exposed as a complete fabrication. The rules he proposed differed only trivially from their 2010 counterparts. The "no blocking" and "transparency" rules were the same. To satisfy the court's instructions, a third rule that prohibited ISPs from engaging in network management practices that "unreasonably discriminated" among content providers was changed to one that prohibited practices that were "commercially unreasonable."

That's it. There was no reference in the rules to "fast lanes" or the equivalent. In the agency's official notice and in the separate comments of the Democrats, even the idea of last mile preferences was explicitly rejected. Nothing was "authorized" or even "blessed." The rules were and continue to be legal ***prohibitions*** ("shall not engage") on ISP behavior.

And in terms of FCC enforcement of the rules, the difference between "unreasonable discrimination" in network management and "commercially unreasonable" network management is probably no difference at all.

So why the hysteria? Many of the groups involved in what became a very personal campaign against Wheeler have long sought to turn the Internet into a regulated utility or even to nationalize it outright. Any real or perceived threat to "the Internet as we know it," even a manufactured crisis, is simply another opportunity to push an agenda Congress wisely rejected in 1996.

The extremists don't want the FCC to adopt any rules. They want the agency, instead, to take over. That's the hammer; net neutrality is just a convenient nail.

Yet much of the mainstream media, including The New York Times and US News, continue to validate the non-conspiracy. They continue to accept, for example, that Wheeler is proposing to "authorize" practices dangerous to the Internet (again, the rules only ***prohibit*** practices), to "end" existing net neutrality rules (there are none), and even to allow ISPs to "block" content at their discretion (the no-blocking rule explicitly prohibits this, as does antitrust law).

While Internet engineering groups and leading content providers have tellingly stayed out of the current firestorm, Internet video giant Netflix continues to stoke the flames for reasons of its own. Since March, founder Reed Hastings has personally tried to hijack the discussion from one about the last mile to one about the inner workings of the Internet, where content companies connect with ISPs.

Which is odd, because, like all large content companies, Netflix uses the full suite of network management technologies and partners to serve its millions of customers. The company, for example, has long made use of Content Delivery Networks, which replicate content, especially video, at key points in ISP networks. (Smaller companies rent space on CDNs from third parties including Akamai and Limelight, or, like Netflix, save money by building their own.)

Netflix has also recently joined every other large content provider in placing its equipment at co-location facilities, where they cross-connect directly to ISP networks.

These services were designed to speed up the delivery of video and other high-bandwidth content. (Netflix video accounts for a third of all Internet traffic during peak viewing hours.) But they do so without degrading the performance of other content — including content of competitors. That's why CDNs and co-location, along with almost a dozen other technologies, were explicitly exempted from the 2010 rules as "reasonable" forms of non-neutral network management.

Netflix, of course, doesn't want CDNs and other optimization technologies banned. They just don't want to continue paying for them. Understandably, the company, which faces ballooning prices for the programming it licenses, wants to cut access costs to the bone. So unlike other large content providers and third parties large and small, Netflix has insisted that smaller ISPs host its equipment free of charge (refusing to pay what Hastings calls, unhelpfully, "Internet tolls").

Netflix now hopes, under cover of the chaotic net neutrality proceeding, that it can convince the FCC to step in even deeper, micromanaging core engineering activities such as transit and interconnection, or what Hastings calls "strong net neutrality." Specifically, Netflix wants the FCC to mandate that ISPs accommodate any and all CDNs and co-located servers at no charge from any content provider (or maybe just Netflix).

Make no mistake, however, about the company's motives. Though Netflix has co-opted the rhetoric of consumer advocacy, the company's activism, for better or worse, is transparently self-serving. Just as taxicab companies are using regulators to stop Uber and Lyft, and hotels are lobbying for prohibitions on Airbnb, Netflix is using the net neutrality debate to improve its own bottom line.

An inch below the surface, the company just wants regulations that would constrain its competitive rivals and suppliers. It's what economists call "rent-seeking behavior," and it's as old as capitalism.

In this case, however, it's particularly dangerous behavior. And if it results in the FCC treating the Internet like a power or water company, a Netflix victory could prove pyrrhic. Transforming Internet access into a public utility might sound like a solution to a range of hypothetical problems — until you consider the decayed state of our existing utilities and regulated infrastructure, which, on any measure, continue to deteriorate. (The American Society of Civil Engineers gives most of it a "D.")

At best, a full or partial government takeover of Internet access would almost certainly slow future network evolution. And in a bit of irony lost on the advocates, such a radical move, assuming it passed legal muster, would actually make "fast lanes" easier, not harder, for ISPs to market.

There's simply no benefit — and enormous cost — to turning the Internet over to the FCC. Indeed, given the dearth of serious technical or legal problems in nearly 20 years of an unregulated Internet, it's not clear that ***any*** new FCC rules are required. But in no sense is the Democrats' proposal designed to "kill" net neutrality or otherwise destroy the Internet.

As far as the Internet is concerned, Congress and the White House got things very very right in 1996. A million piece of hate mail to FCC Chairman Tom Wheeler and new terminology can't change the past. Let's hope it won't change the future either.

*Downes is co-author with Paul Nunes of "Big Bang Disruption: Strategy in the Age of Devastating Innovation" (Portfolio 2014). He is a Project Director at the Georgetown Center for Business and Public Policy.*

**Appendix III**

# Race to gigabit Internet service takes off

Four years after the National Broadband Plan, communities and carriers are deploying next-gen infrastructure that will bring gigabit speed Internet to homes, universities, and businesses.

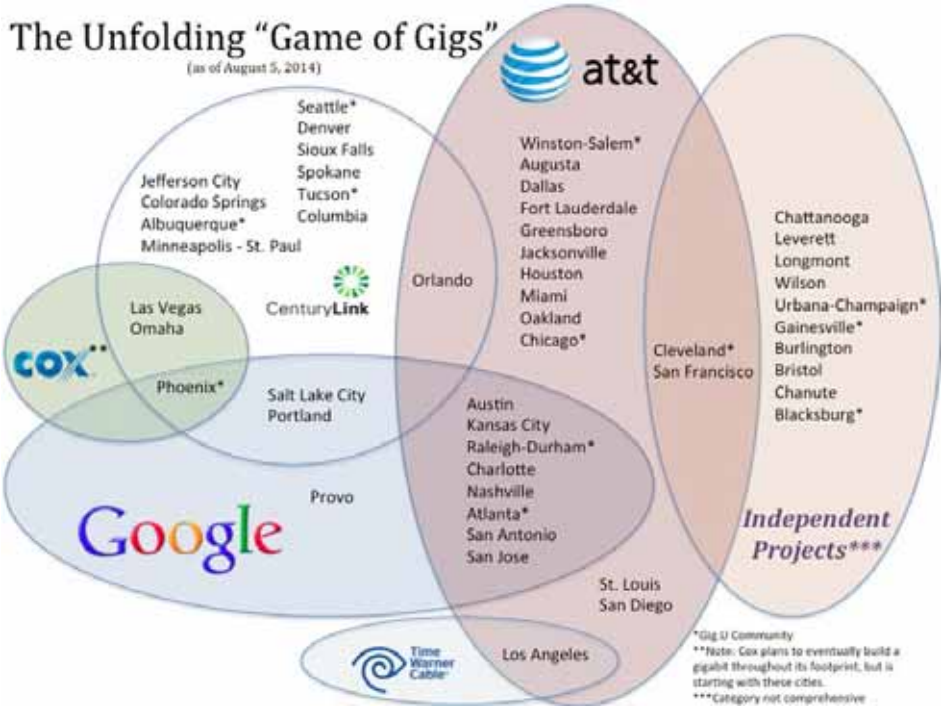
by Larry Downes

August 31, 2014 4:00 AM PDT

With the "irrational exuberance" of the early Internet economy, speculators spent billions laying thousands of miles of fiber optic cable for backhaul, expecting Internet use would continue growing at the unprecedented rates of the late 1990s. As part of the great dot com bust of 2000, however, most of the speculators went bust, leaving so-called "dark fiber" to wait for demand to catch up.

That time, it seems, has finally come.

In its third annual report (PDF), Gig.U, a consortium of nearly 40 research universities, reported in the last week that the number of announced and in-process consumer gigabit Internet service offerings has begun to take off. "Scores of American communities, including over a dozen Gig.U communities, are now deeply engaged in deploying of such networks," the report notes.




Since Gig.U's report went to press, AT&T announced plans to bring its U-Verse GigaPower service to Cupertino, Calif. Gig.U Third Annual Report.

Progress on deploying 1Gbps broadband service has proceeded with impressive results since 2010, when the Federal Communications Commission's visionary National Broadband Plan called for gigabit test bed communities offering ultra high-speed Internet connections, at least for anchor institutions including "schools, hospitals and government buildings."

Before the ink had even dried on the FCC report, Google announced plans to take up the challenge, launching a competition to select one community for a fiber-to-the-home service that it called Google Fiber. That competition was won by Kansas City, where Google Fiber is now in operation. (Google Fiber has since expanded to Austin and to Provo, Utah, where it took over a failing municipal fiber service.)

Soon after publication, the plan's chief author, Blair Levin, left the FCC to launch Gig.U. Levin, who had previously served as chief of staff for former FCC Chairman Reed Hundt, was convinced that the solution to stubborn broadband access, adoption, and competition problems all lay in promoting what he and Hundt called a "Politics of Abundance."

"History shows that nations always benefit economically from network upgrades," Levin said in an interview with CNET. "But in 2009, investors weren't eager to invest in the next generation. We wanted to find a way to change that."

Gig.U's solution was to organize research universities and their communities, and to create common proposal documents with which to attract gigabit Internet providers. Residents and businesses in university towns, Levin reasoned, were the most likely markets to subscribe to

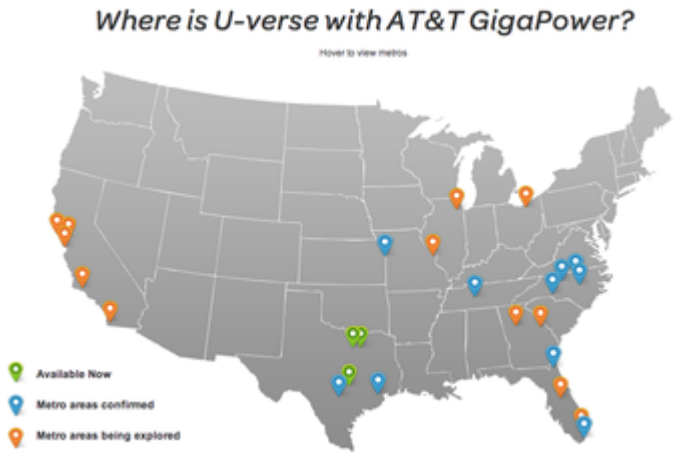
Internet speeds as much as 100 times faster than existing networks offered, making it easier to sell the idea to the private investors who would need to pay for the construction of new fiber-based infrastructure.

Between Google Fiber and Gig.U's highly-visible experiments, according to Levin, a competitive "Game of Gigs" among both communities and broadband providers is now in full swing.

In the last twelve months, the opening move has shifted from communities looking for willing providers to forward-thinking companies, including AT&T, Google, and CenturyLink, taking the initiative in reaching out to cities.

That shift is in part a response to competitors old and new getting serious about the gigabit game. With the continued growth of Internet-based video services and the imminent arrival of 4K or "ultra High Definition" programming, advanced tele-health applications, and other high-bandwidth services, providers can more easily make the business case to Wall Street for the substantial investments required.

Among traditional communications providers, AT&T's all-fiber GigaPower has been the most aggressive, with service available or in process in nearly two dozen US cities, a number that may reach as many as a hundred. Last week, the company announced plans to make the service available soon in Cupertino, Calif., the headquarters for Apple and other high-tech companies.




AT&T plans to expand the 1Gbps GigaPower service in up to 100 candidate cities and municipalities across 25 markets nationwide. AT&T

Network providers are also getting unprecedented cooperation from communities and residents. Thanks in part to the work of Gig.U, local governments now see competitive advantage for cities offering the highest-speed Internet services to residents, businesses, and high-tech entrepreneurs.

Following the success of Google's Fiber project in Kansas City, city governments now appreciate the need to throw out obsolete and inefficient regulations and other red tape that raise the cost or

make impossible the necessary construction to bring 1Gbps broadband service deeper into neighborhoods.

Levin says the Gig.U effort most likely to serve as a model for other communities is a regional project organized by four universities and six cities in North Carolina. The North Carolina Next Generation Network project received eight responses to its request for proposal earlier this year, ultimately negotiating an agreement with AT&T based largely on Gig.U's model terms.

These initiatives, as well as continued increases in both Internet use and users, are lighting up much of the dark fiber that's been waiting since the 1990s. Network operators are now expanding that fiber to neighborhoods and in some cases directly to homes and office buildings.

But fiber is not the only technology capable of delivering gigabit Internet services. As Levin notes, existing cable infrastructure can also support gigabit speeds through channel bonding, the approach being taken by Cox. Under DOCSIS 3.1, the next-generation standard for cable modems, gigabit speeds will be even easier to implement.

A number of disruptive innovations are also extending the limits of wireless connections. Levin expects gigabit speeds will be available soon using fixed wireless technology and in a future migration to 5G protocols. Wireless gigabit will play a large role in getting high-speed Internet to rural areas, where the cost of laying fiber is prohibitive.

Already, Air.U, an offshoot of Gig.U, has successfully experimented with using unlicensed spectrum between broadcast television stations (so-called "white spaces") to bring "Super Wi-Fi" service to mobile users in West Virginia.

Some traditional carriers were initially skeptical about making the business case for Internet services that would increase capacity by a leap of two orders of magnitude. But that uncertainty is fading rapidly as more Americans adopt broadband technology and join their neighbors in the consuming high-definition video and other bandwidth-intensive applications online.

Indeed, the NBP identified several major categories of applications that would ultimately require much higher Internet speeds, including smart grids, the Internet of Things, distance learning, tele-health, and, of course, new forms of gaming and entertainment. "We've always believed that if you build it, the applications -- and the users -- will come," Levin said.

The plan's authors, however, identified a serious chicken-and-egg problem. Without the new services, there was little incentive for operators to build capacity that was wildly ahead of projected demand. And without the networks, entrepreneurs had no platform on which to develop or deliver the services.

Gig.U was formed to help break that logjam. The results so far have been impressive, but the game is far from over. "We think the years 2015 and 2016 will prove decisive in achieving our goal," the report concludes, "but only if we, and others, spend this year with our foot on the accelerator."

About the author

Larry Downes

Larry Downes is an author and project director at the Georgetown Center for Business and Public Policy. His new book, with Paul Nunes, is "Big Bang Disruption: Strategy in the Age of Devastating Innovation." Previous books include the best-selling "Unleashing the Killer App: Digital Strategies for Market Dominance." See full bio

**Appendix IV**

Innovations

# Why Internet governance should be left to the engineers

By Larry Downes September 3

If governments really care about the Internet, they should stay out of the engineers' way. (Euan Rocha/Reuters)

As the Internet and the disruptive innovations it spawns are becoming economically, politically, and culturally vital for the world's three billion users (and counting), there's been a worrisome though unsurprising outburst of initiatives across governments to figure out ways to control it, suppress it, or otherwise extract value from it.

This week, I am in Istanbul at the U.N.'s Internet Governance Forum, an ongoing "policy dialogue" that has met regularly since 2006 to discuss global issues of Internet access and use. This year's event has over 2,500 attendees.

Local politics are unavoidable, of course. The 2014 IGF has been marred by controversies over host country Turkey's continuing repression of online activists. And the overheated debate over net neutrality in the United States has likewise infected most discussions at the conference.

But whether the topic is net neutrality, Internet access in developing nations, human rights, free speech, privacy or government surveillance, the real issue in digital policy boils down to one simple question: who is best-suited to regulate the unique architecture of the open Internet?

Until now, the answer has almost exclusively been the engineers who built and maintain it. To the credit of many (though not all) national governments, regulation of the network has largely been left to democratic "multistakeholder" processes and organizations, notably the Internet Society, which tirelessly coordinates enhancements to the Internet's technical standards.

In the United States, a "first do no harm" approach has been the official and bipartisan policy of the country since the emergence of the commercial Internet in the mid-1990's. And whatever measure of success you prefer, the results of that foresight speak for themselves.

But a wide range of groups with overlapping and sometimes hidden agendas are organizing to break that model, often with the best of intentions — or so they say.

These include the U.N.'s International Telecommunications Union, the European Union, national governments democratic and otherwise, regulatory agencies limping into the 21st century from the telephone (or even telegraph) era, and even state and local governments.

Within and outside each are activists fanning the flames of anxiety among all stakeholders over concerns that the most disruptive technologies in the past century are under siege from forces determined to undermine them.

The Internet, we hear in every session, is "insecure," open to exploitation by spies, criminals, and self-serving corporations. The engineered openness we celebrate is both the source of its greatest value and its greatest risk.

But given the engineers' enviable track record, I trust them to maintain that delicate balance far more than I do traditional governments and unelected regulators. For starters, the engineers work in the open, quickly and efficiently, with the best ideas — rather than the most politically expedient — rising to the top.

The engineering-driven multistakeholder process is by no means perfect. Still, several days' worth of sessions focused just on net neutrality highlight the limitations of the alternative — letting governments, activists, and academics lead the conversation.

By the end, the only consensus reached was that nothing was clear, including what is even meant by the term.

For some, net neutrality is an assurance that regulators will keep access providers from blocking or favoring content based on anti-competitive interests. But beyond that entirely reasonable principle, debate rages on the status of a wide range of established network management technologies that maximize the efficiency of traffic flow, and in particular high-bandwidth applications including video and voice.

Arguments in favor of or against several non-neutral practices — content delivery networks, co-located servers, and transit, for example — inevitably reveal themselves as thinly-veiled efforts to redirect regulators for strategic advantage over suppliers or competitors. That, of course, is

business as usual in dealing with traditional government — another powerful reason to be skeptical of their value over the engineers.

And in countries with more repressive governments, net neutrality is aimed at protecting users *from* their elected representatives, who are far more likely to be the source of blocks, bans, or interference with user content.

There was sometimes a disturbingly doctrinaire, almost colonial, tone to the debate. Under the banner of net neutrality, governments have begun to prohibit innovative programs including so-called "zero-rated" services, where social media companies including Facebook and Twitter pay the mobile data charges for their users who are otherwise unable to afford it.

At a panel on the topic Wednesday, U.S. and European advocates told representatives of developing nations that the principle of neutrality was more important than subsidized access for their poorest citizens. Not surprisingly, the representatives disagreed.

And for many stakeholders, net neutrality extends across the Internet, applying equally to content companies and other service providers. A recent report from the French government's Digital Council, for example, worries much more about the danger of dominant platform providers, including Google, Facebook, Amazon and Twitter, than about network management by ISPs.

For these hyper-successful startups, the report concludes, "the low level of initial investment required has made it possible to quickly build up dominant platforms on user functions" including search and social media. "As long as they continue to go unchallenged by either the political community or by other industry players," the authors warn, "their powerful position will be maintained."

My co-author Paul Nunes and I also noted the phenomenon of "winner take all" outcomes in markets subject to constant innovation, or what we call "Big Bang Disruption." But our research suggests such dominance is always — and usually quickly — overcome, not by regulators or new competitors so much as the next wave of disruptive technologies.

But here too it is worth noting how below the surface such an encompassing view of net neutrality is often advanced by countries without significant Internet businesses against those who do — it's an old-fashioned trade war, in other words.

No surprise, then, that the net neutrality sessions at IGF generated no accord. Indeed, those of us who urged staying the course of engineering-driven governance were quickly dismissed as being "opposed" to net neutrality if not the core values of the Internet itself. Even then, the interventionists quickly fell out among themselves.

Those now calling on the FCC to vastly increase its role in managing the Internet ecosystem, including network management, should reflect soberly on that global discord.

Many were in attendance in Istanbul. Abroad, they wisely call for caution in international efforts to overthrow the multistakeholder model that has been the Internet's greatest policy innovation. Once they overcome the jet lag, perhaps they'll see the danger of their very different approach at home.

Government by slogan, in any case, is a bad idea. But a poisonous political environment in Washington has brought us dangerously close to abandoning bipartisan wisdom that has generated billions of dollars of new value in Internet start-ups seen nowhere else in the world, the investment by private companies of over a trillion dollars in network infrastructure, and growing competition to deliver gigabit speeds to communities around the country.

Moore's Law and traditional law run at vastly different clock speeds. Disruptive innovation cannot thrive at the appropriately deliberate pace of traditional governments, however well-intentioned (or not). At best, governments can empower engineers, entrepreneurs, and advocates to work out the rules of the road. But they cannot dictate the rulebooks, or safely enforce them.

At least not without serious danger of collateral damage far worse than the problems they hope to solve.

*Larry Downes is co-author with Paul Nunes of "Big Bang Disruption: Strategy in the Age of Devastating Innovation" (Portfolio 2014). He is a Project Director at the Georgetown Center for Business and Public Policy.*

## Appendix V

**(Attached as separate PDF)**

**Appendix VI**


Larry Downes Contributor

# When Internet 'Neutrality Principles' Conflict With Engineering, Everyone Loses

Episodes 3 and 4 of VC/DC, our new series on the accident-prone intersection of technology and policy, are now available for viewing here on Forbes. In Episode 3, Forbes Senior Editor Kashmir Hill and I discuss the most recent hacking of celebrity iCloud accounts and subsequent disclosure of intimate photos, and the hand-wringing over privacy and cybersecurity that predictably followed.

Moving from the sensational to the sublime, Episode 4 finds us discussing the 9th Annual Internet Governance Forum in Istanbul, which I attended last week. The IGF is a noble effort initiated by the U.N. to foster dialogue about Internet governance in a "multi-stakeholder" setting—meaning that national governments, who have grown increasingly anxious to control, constrain, or otherwise extract value from the Internet, are put in the same room and at the same level with public interest groups, academics, and engineers.

The IGF negotiates no documents and holds no votes. The conversation is meant simply to inform the attendees and their constituents on emerging and diverging views of key policy and technology issues.

(By contrast, the U.N.'s increasingly irrelevant International Telecommunications Union, whose last treaty-revision meeting ended in total meltdown, sets standards for a wide range of communications technologies—but notably, until now, not the Internet. Public interest groups can join the ITU for a high price, but only national governments get to vote, and each country's vote is weighed the same.)

## Net Neutrality Goes Global

The manufactured crisis over the FCC's latest efforts to pass enforceable open internet (or "net neutrality") rules dominated conversations in Turkey, and shed new perspective on just how counter-productive the debate has become.

Advocates who, for a variety of self-interested reasons, have long pushed for the FCC to find a way to regulate Internet access in the U.S. as if it were a public utility, are now amping up their rhetoric, warning Internet users that new rules that would ***prohibit*** a wide range of ISP practices would instead "authorize" the creation of new content "fast lanes" that would "break the Internet" and "kill net neutrality."

Support for—or even indifference to—the FCC's pending rulemaking is now being reflexively characterized in an Orwellian twist as opposition to the very idea of an open Internet.

But no reasonable person opposes what has long been understood by the open Internet—where any computer can join the network so long as it follows the underlying protocols and makes the necessary connections with other computers, and where any website can be made as accessible as its developers wish to any connected user.

In reality, "net neutrality" is at best an engineering principle—a legal academic's term for the underlying packet-switching architecture of the Internet, where communications are broken into smaller units of bits and routed dynamically through the thousands of computers large and small the make up the global network.

Even from a technical standpoint, that principle has never been more than a design feature, one that has increasingly been relaxed in response to changing traffic patterns and the subsequent need to optimize networks increasingly dominated by voice and video traffic.

In order to maintain their integrity, such traffic has inspired a wide range of non-neutral technologies, including the co-location of content provider equipment at key points in the network that duplicates the most frequently-requested content for shorter routing to end-users. Content delivery networks, so-called "specialized services," virtual private networks, transit agreements and many others are all examples of non-neutral technologies and business arrangements, most of them as old as the commercial Internet itself and, from an engineering standpoint, entirely uncontroversial.

But self-appointed public interest group and self-interested content providers including Netflix, who either don't understand the network's underlying engineering or cast a blind eye to it, have elevated and mutated "neutrality" to a political ideal, one that is increasingly at odds with their actual goals of improving Internet access, performance, and pricing.

In the U.S., the most recent outburst of the net neutrality debate has devolved into demands so abstract it isn't clear who's actually on which side. Of over a million comments that flooded the FCC earlier this year, most were spam form letters demanding that the agency maintain net neutrality, which Chairman Tom Wheeler has been at great pains to explain was his goal from the very beginning.

While some groups have been specific about their not-so-hidden agenda of nationalizing U.S. network operators and their trillion dollars of private investment, most have remained vague. On Wednesday, for example, a coalition of advocacy groups staged a simulated Internet

"slowdown," designed to show what the Internet might look like without "strong" net neutrality rules.

The stunt attracted a great deal of attention, but beyond the utterly bankrupt idea of transforming ISPs into power and water utilities, little in the way of concrete, reasoned, technically or legally-feasible recommendations.

Most of the leading content providers, having learned their lesson back in 2010 when this "debate" last emerged, are sitting this one out. Google, which led the charge in 2010 for FCC rules rejected earlier this year on largely procedural grounds, has launched an utterly content-free "take action" campaign, urging users to register and "stand up" for a "free and open" web, whose tenets include "freedom to participate," "freedom of expression" and "freedom from unwarranted intrusion" from governments themselves.

All admirable goals, but what action specifically does the company have in mind?

The question matters. The engineering groups who actually maintain and enhance the protocols, many under the umbrella Internet Society, can't engineer ideals. Nor can regulators.

## Zero-Rating and the Goal of Open Access

At the IGF, the high-minded rhetoric took on even more extreme and unhelpful forms, couching net neutrality as the equivalent of free speech, fairness, freedom, democracy and openness. What was even meant by net neutrality was equally unclear, with some groups insisting the principle applied equally if not more to content and service "monopolies" such as Google, Facebook, and Amazon. Others emphasized the freedom from censorship and limits imposed by governments where "free speech" is not constitutionally or otherwise guaranteed.

Worse, when the rhetoric hit the engineering in concrete problems, the advocates found themselves awkwardly on the wrong side of their own verbiage.

At the most revealing session of the conference, for example, advocates and representatives of developing nations squared off over a recent business innovation known as "zero-rating." Under zero-rating, content providers (including Facebook, Twitter and the non-profit Wikimedia) arrange with mobile network providers to cover the cost of data charges for users who otherwise cannot afford data services at all.

The goal of zero-rating is to make available the most popular services and content to the two-thirds of the world's population who don't currently have any Internet access at all. These users will almost certainly enter the market through mobile devices and networks, and, cost aside, be most drawn to social media and information services, including local and government-supplied information. (In the U.S., surveys show, non-Internet users rank cost well below relevance in their reasons for not going online.)

There's no question of the value of zero-rating in helping close the global digital divide, and of promoting many of the core "values" the advocates claim to support. As the American Enterprise Institute's Roslyn Layton notes, "Wikipedia Zero is available to an estimated 350 million people in 30 countries; it serves more than 65 million pageviews every month. The Wikimedia Foundation has received requests from grassroots organizations around the world to bring the program to their country."

But because zero-rating has the effect of prioritizing some content, public interest groups have attacked the services as violations of net neutrality, encouraging national governments in the developing world to ban them.

At the session, advocates found themselves awkwardly defending their doctrinaire and engineering-free neutrality principle against representatives of developing nations, who praised the zero-rated services and the effect they've already had on introducing more and more users to the value of the Internet and connectivity.

In an email Thursday to its supporters, for example, the U.S.-based Center for Democracy and Technology stuck to its guns, arguing that users who couldn't get full and equal access to the entire Internet were better off with no Internet at all:

While zero rating can provide some limited access to those who have none, those users gain free access only to their carrier's preferred partners – something well short of an open Internet and which goes against the fundamental principles of net neutrality.

The "principles," it seems, are more important than the actual objectives, especially when those who must bear the cost of upholding them are poor and far away. As Techdirt's Mike Masnick concludes with uncharacteristic understatement, "Tricky stuff this net neutrality."

Tricky stuff indeed. And perhaps best left, as a matter of first principles, to the engineers. So far, they've done an amazing job.

***My new book, co-authored with Paul Nunes, is "Big Bang Disruption: Strategy in the Age of Devastating Innovation" (Portfolio 2014). Follow me on Twitter and Facebook for more on the accident-prone intersection of technology and policy.***